Amendments to the Specification:

Please amend the third paragraph on page 5 as follows:

It is a further object of the invention to provide a moving bed adsorber apparatus that maintains a substantially constant depth or thickness of adsorbent free from bridging of the ~~adorbent~~ adsorbent particles.

Please amend the second paragraph on page 6 (which extends onto page 7) as follows:

In accordance with the present invention, there is provided a moving bed adsorber apparatus which comprises a housing having a fluid inlet through which a fluid stream may pass into ~~he~~ the housing, a fluid outlet through which a fluid stream may pass out of the housing, an adsorbent inlet through which a stream of flowable adsorbent material (e.g., small beads of resin) may pass into the housing and an adsorbent outlet through which the adsorbent material may exit the housing. Within the housing there are a series of spaced-apart, downwardly sloping vanes (e.g., louvers). Adsorbent which has entered the housing flows downwardly over the edges of the vanes. Contaminated fluid which enters the housing through the fluid inlet is caused to flow through spaces between the vanes and then through the adsorbent bed such that a contaminant (e.g., a VOC, water, or other chemical or substance) will be adsorbed onto the adsorbent. An adsorbent depth regulator (e.g., a screen, porous plate, series of vertically disposed baffles, etc.) is positioned a spaced distance away from the edges of the vanes to regulate the thickness of the adsorbent bed as it flows downwardly over the vanes. At least portion(s) of the adsorbent depth regulator is/are porous to allow clean fluid to pass there through. The adsorbent depth regulator may be configured and/or positioned relative to edges of the vanes such that the adsorbent bed is maintained at a desired depth or thickness (e.g., a continuous, uniform depth or thickness or prescribed regional variations in depth or thickness). Clean fluid that emerges from the flowing adsorbent bed passes through adsorbent depth regulator and then out of the clean fluid outlet. The spent adsorbent passes out of the adsorbent outlet. The spent adsorbent may be disposed of in any suitable manner or may

be transferred to a desorber device where the contaminant may be desorbed from the adsorbent and recovered (e.g., via a heat, drying and/or condensation, or any other suitable process which removes the contaminant from the adsorbent material).

Please amend the first full paragraph on page 7 as follows:

In accordance with the invention, variables such as the angle(s) of the downwardly sloping vanes, the width(s) of the spaces between the vanes, the type and size of the adsorbent particles and the flowrate of the adsorbent bed may be prescribed or adjusted to optimize throughput (e.g., the flowrate of contaminated fluid through the adsorber device) while preventing substantial amounts of the adsorbent material from backing up into the spaces between the vanes. In many applications of the present invention, the spaces between the vanes may be wider than the ~~crossectional~~ cross-sectional dimension of the smallest adsorbent particles but no substantial amount of the adsorbent will back feed into the spaces between the vanes due to the downward slope of the vanes relative to the direction at which the adsorbent bed is moving.

Please amend the first full paragraph on page 8 as follows:

Still further in accordance with the invention, there is provided a shell and tube desorber device which generally comprises a shell, a plurality of tubes disposed within the shell, an adsorbent inlet and adsorbent outlet for passing adsorbent through the tubes, a heated fluid inlet and outlet for passing heated fluid ~~theugh~~ through the shell, and a recovered substance outlet for carrying the recovered substance out of the tubes, wherein said desorber device is operable such that a) a heated fluid is passed through the shell, b) an adsorbent laden with a recoverable substance is passed through the tubes such that the adsorbent becomes heated and the recoverable substance becomes desorbed, c) the desorbed recovered substance flows out of the recovered substance outlet and d) the adsorbent from which the recovered substance ~~as~~ has been desorbed flows out of the recovered substance outlet.

Please amend the fifth paragraph on page 9 as follows:

Fig 2C' is a view of the slide valve similar to the view shown in ~~fig~~ Fig. 2C, with the slide valve now being partially closed to flow.

Please amend the first paragraph on page 10 as follows:

Turning now to Fig. 1, a simplified schematic illustration of ~~an~~ a moving bed adsorber/desorber apparatus 10 in accordance with the present invention is shown. For the sake of simplicity, the apparatus will hereinafter be primarily described as a moving bed adsorber apparatus, though it will be appreciated by those of ordinary skill in the art that the apparatus, with appropriate modification thereto, may be utilized as a desorber apparatus.

Please amend the second paragraph on page 10 as follows:

Generally, Fig. 1 shows that the apparatus 10 is structured to form a substantially continuous moving adsorbent bed 12 comprising for example, particles 14 of an adsorbent material. For example, the adsorbent particles may comprise [[a]] commercially available resin particles, for example, in spherical or granular form. As will be explained in greater detail hereinafter, the moving adsorbent bed 12 provides a highly efficient, highly effective means for processing a fluid, for example a contaminated feed gas having an adsorbable contaminant component therein.

Please amend the second full paragraph on page 11 as follows:

More particularly, the bed thickness regulator 30 is structured to provide an effective means for regulating and maintaining a substantially uniform thickness and continuous flow, preferably at or near plug flow, of the moving adsorbent bed 12. It can be appreciated from Fig. 1 that the porous element 32 may define another boundary, for example an upper boundary, of the passageway ~~24~~ 20.

Please amend the third full paragraph on page 11 as follows:

These features of the present invention ~~provides~~ provides substantial advantages over conventional fixed bed or fluidized bed adsorbent systems. For example, by providing a moving adsorbent bed, moving primarily by force of gravity, and moving substantially at plug flow, the bed depth can be small so the pressure drop is minimized within the adsorbent bed, and allows effective operation of the apparatus 10 over a wide range of flow

rates of the feed stream.

Please amend the last paragraph on page 11 (which extends onto page 12) as follows:

Referring now specifically to Figs. 2 and 2A, in accordance with this specific embodiment of the invention, the present invention provides an adsorption/~~desaborption~~ desorption unit 100, useful as a component of a larger contaminant removal and/or recovery system (not shown in Fig. 2 or 2A). The unit 100 is shown to include four adsorber/desorber apparatus 110a, 110b, 110c, and 110d enclosed within a single housing 40. It is noted that the unit 100 is structured to enable processing of 500 scfm to greater than 4800 scfm of feed gas. Because the unit 100 is preferably designed to be modular, additional similar units in accordance with the present invention, may be included in a larger contaminant removal and/or recovery system, as the application may require.

Please amend the second full paragraph on page 13 as follows:

Turning now as well to Fig. 2B, a preferred structure of the contaminated fluid inlet assembly 124 is shown. The fluid inlet assembly 124 preferably forms an outwardly angled, inverted, generally V-shaped structure comprising a series of spaced-apart vanes 70, designed for directing a fluid flow, for example a contaminated gas flow, into the passageway 120 of the apparatus 110a in a manner that optimizes contact of the gas with particles of adsorbent. The angle between the adsorbent flow channels that form such generally V-shaped fluid inlet assembly 124 may be in the range of 20-90 degrees and in some embodiments in the range of 20-60 degrees.

Please amend the second full paragraph on page 14 as follows:

Preferably, the spaces 72 and vanes 70 are disposed in a non-vertical orientation, and more preferably in a downwardly angled orientation in the range of 10-45 degrees, or in some embodiments in the range of 15-30 degrees, ~~such~~ as shown. Therefore, feed fluid directed into the apparatus (for example, in the direction of arrows 122 in Fig. 2A) will be

pass into the passageway 120, which is filled with the moving adsorbent bed 112, in a generally downward direction, maximizing contact of feed fluid with adsorbent.

Please amend the last paragraph on page 16 (which extends onto page 17) as follows:

Turning now to Fig. 3, an alternative adsorbent bed thickness regulator 200 is shown as disposed above and spaced apart from the contaminated fluid inlet assembly 24. Like the bed thickness regulator 30 and 130 described elsewhere herein, bed thickness regulator 200 is positioned within the housing (not shown in Fig. 3) and is structured to regulate or maintain the thickness of the moving bed or mass of adsorbent within a substantially uniform passageway 120'. However, rather than the flat porous element 32, the bed thickness regulator 200 comprises a series of vertically disposed baffles 202, preferably spaced apart from one another a sufficient distance that will prevent resin particles from entering spaces 206 between the baffles 202. It ~~it~~ is to be appreciated that any other suitable structure or apparatus, such as baffle(s), screen(s), doctor blade(s) and the like, may be provided as a means of regulating and maintaining the thickness of the moving adsorbent bed.

Please amend the first partial paragraph on page 18 (which begins on page 17) as follows:

The treated gas, having the contaminant component substantially removed therefrom, is vented through line 418 into the atmosphere (or alternatively, to another adsorber unit 100 for additional treatment). In this example, the bed thickness regulator 30 includes a porous element 32 that has pores or openings, which are small enough to prevent the adsorbent beads from escaping therethrough. In this particular example wherein the Dow Octipore ~~502~~ 503 resin is being used to recover hexane, the porous element may be a stainless steel screen having openings of approximately 0.016 inch or any other size that is small enough to preclude passage therethrough of substantial numbers of the adsorbent beads. In many applications, screen having openings of up to approximately 0.25inch or larger may be acceptable, depending on the corresponding size of the adsorbent particles being used.

Please amend the first partial paragraph on page 19 (which begins on page 18) as follows:

Turning back now briefly to Fig. 1, those of skill in the art will appreciate that the moving bed adsorber apparatus 10 of this invention may also be used as a moving bed desorber. In such desorber applications, spent resin will enter the apparatus 10 through adsorbent inlet 16, and clean resin will exit the apparatus 10 at the adsorbent outlets 48. Also, in such desorber applications, a recovery fluid (for example, hot air or steam) will flow into the apparatus 10 through the fluid inlet assembly 24 (in direction of arrows 22) and recovery fluid laden with the desorbed contaminant will exit the apparatus 10 in the direction of arrows 34. Alternatively, as shown schematically in Figure 6, in at least some applications of the moving bed desorber, the fluid inlet assembly 24_{alt} may be inverted from that shown in Figure 1, such that the vanes 70_{alt} slope downwardly toward the interior of the device and the adsorbent flow channels defined between the inner edges IE of the vanes 70_{alt} and the porous bed thickness regulator 30_{alt} are generally in a "V" configuration. The spent adsorbent enters in two streams at the top of the device as indicated by arrows 16_{alt} and flows downward between the inner edges IE of the vanes 70_{alt} and the bed thickness regulator 30, exiting through a single adsorbent outlet indicated by arrow 48_{alt}. The recovery fluid enters the interior of the housing, passes through the spaces between the vanes 70_{alt} as indicated by arrows 22 ~~24~~$_{alt}$, passes through the adsorbent so as to desorb the contaminant or other adsorbed substance from the adsorbent and the recovery fluid containing ~~containg~~ the recovered (i.e., desorbed) contaminant or substance then passes through the porous bed thickness regulator 30_{alt} as indicated by arrows 34 ~~30~~$_{alt}$.

Please amend the first paragraph on page 20 as follows:

Spent resin to be treated flows from a hopper 526 ~~though~~ through a manifold (not shown) and into the plurality of tubes 508 within the shell 506. The tubes 508 may be sealed and a vacuum applied thereto during the desorption process. The adsorbent 512 in the tubes 508 is heated by the hot medium flowing through the shell 506. In this manner the contaminant, for example, hexane, is desorbed from the adsorbent 512 and is caused to vaporize.

Please amend the third paragraph on page 20 as follows:

Preferably, the assembly 504 is disposed at an angle of between about 30 degrees to about 60 ~~approximately 10-45~~ degrees, more preferably at about 45 ~~approximately 15-30~~ degrees, from the horizontal. In addition, a vacuum source may be connected to the tubes 508 for example at line 542 ~~for example at~~ in order to maintain a vacuum, preferably a deep vacuum within the tubes 508, for example a vacuum measuring between about 10 to 100 Torr. The deep vacuum allows more rapid desorption at a lower heat requirement.

Please amend the last paragraph on page 20 (which extends onto page 21) as follows:

While all aspects of the present invention have been described with reference to the aforementioned applications, this description of various embodiments and methods shall not be construed in a limiting sense. The aforementioned is presented for purposes of illustration and description. It should be understood that all aspects of the invention are not limited to the specific depictions, configurations or relative proportions set forth herein which depend upon a variety of conditions and variables. The specification is not intended to be exhaustive or to limit the invention to the precise forms disclosed herein. Various modifications and insubstantial changes in form and detail of the particular embodiments of the disclosed invention, as well as other variations of the invention, will be apparent to a person skilled in the art upon reference to the present disclosure. It is therefore contemplated that the appended claims shall cover any such modifications, or variations of the described embodiments as falling within the true spirit and scope of the invention.